

ANALYTICAL RESULTS

Prepared for:

Langan
500 Hyde Park
Doylestown PA 18901

215-348-7101

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425**SAMPLE GROUP**

The sample group for this submittal is 945378. Samples arrived at the laboratory on Friday, May 27, 2005.
The PO# for this group is SUNOCO PHILLY REFINER.

Client DescriptionWPM8-052605 Grab Water Sample
WPM11-052605 Grab Water Sample
WP16-5-052605 Grab Water Sample
WP16-3-052605 Grab Water Sample
B145-052605 Grab Water Sample
Trip Blank Water Sample**Lancaster Labs Number**4533803
4533804
4533805
4533806
4533807
45338081 COPY TO LL
1 COPY TO Langan
ELECTRONIC SUN: Aquaterra Tech.
COPY TO
ELECTRONIC Langan
COPY TOAttn: Angela Miller
Attn: Jason Hanna
Attn: Brad Spancake

Attn: Dennis Webster

Questions? Contact your Client Services Representative
Angela M Miller at (717) 656-2300

Respectfully Submitted,



Michele J. Smith
Group Leader

Lancaster Laboratories Sample No. WW 4533803

WPM8-052605 Grab Water Sample
SUN: Philadelphia Refinery AOI-6

Collected: 05/26/2005 08:45 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45
Reported: 06/15/2005 at 16:50
Discard: 07/16/2005

Langan
500 Hyde Park
Doylestown PA 18901

WPM08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
06035	Lead	7439-92-1	< 0.0010	0.0010	0.00018	mg/l	1
07879	EDB in Wastewater						
01087	Ethylene dibromide	106-93-4	< 0.029	0.029	0.0097	ug/l	1
The surrogate recovery for the LCS is outside the upper QC limit. Since the surrogate recovery for the LCSD and the spike recoveries for the LCS/LCSD are within the QC limits, the data was reported.							
The surrogate recovery for the sample is outside the upper QC limit. Since the recovery is high and no ethylene dibromide was detected in the sample, the data was reported.							
07805	PAHs in Water by GC/MS						
03947	Naphthalene	91-20-3	< 1.	1.	1.	ug/l	1
03956	Fluorene	86-73-7	6.	1.	1.	ug/l	1
03963	Phenanthrene	85-01-8	2.	1.	1.	ug/l	1
03967	Pyrene	129-00-0	9.	1.	1.	ug/l	1
03971	Chrysene	218-01-9	2.	1.	1.	ug/l	1
The GC/MS semivolatile internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.							
Surrogate recoveries were outside of QC limits for the GC/MS semivolatile compounds. The analysis was repeated outside of the required hold time and surrogate recoveries did not confirm a matrix effect. The data reported is from the initial extraction of the sample.							
02302	UST-Waters by 8260B						
02010	Methyl Tertiary Butyl Ether	1634-04-4	24.	5.	0.5	ug/l	1
05401	Benzene	71-43-2	27.	5.	0.5	ug/l	1
05402	1,2-Dichloroethane	107-06-2	< 5.	5.	1.	ug/l	1
05407	Toluene	108-88-3	< 5.	5.	0.7	ug/l	1
05415	Ethylbenzene	100-41-4	< 5.	5.	0.8	ug/l	1
05420	Isopropylbenzene	98-82-8	27.	5.	1.	ug/l	1
06310	Xylene (Total)	1330-20-7	< 5.	5.	0.8	ug/l	1

Commonwealth of Pennsylvania Lab Certification No. 36-037

*=This limit was used in the evaluation of the final result

Lancaster Laboratories Sample No. WW 4533803

WPM8-052605 Grab Water Sample
SUN: Philadelphia Refinery AOI-6

Collected: 05/26/2005 08:45 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45
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Discard: 07/16/2005

Langan
500 Hyde Park
Doylestown PA 18901

WPM08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
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This sample was filtered in the lab for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	06/14/2005 18:32	David K Beck	1
07879	EDB in Wastewater	SW-846 8011	1	06/04/2005 14:05	James H Place	1
07805	PAHs in Water by GC/MS	SW-846 8270C	1	06/01/2005 23:20	Jolene M Graham	1
02302	UST-Waters by 8260B	SW-846 8260B	1	06/07/2005 22:46	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	06/07/2005 22:46	Jason M Long	n.a.
06050	ICP/MS SW-846 Water	SW-846 3010A Mod.	1	06/10/2005 19:00	James L Mertz	1
07786	EDB Extraction	SW-846 8011	1	05/31/2005 15:00	Amanda W Herr	1
07807	BNA Water Extraction	SW-846 3510C	1	05/31/2005 08:00	Danette S Blystone	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories Sample No. WW 4533804

WPM11-052605 Grab Water Sample
SUN: Philadelphia Refinery AOI-6

Collected: 05/26/2005 09:10 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45
Reported: 06/15/2005 at 16:50
Discard: 07/16/2005

Langan
500 Hyde Park
Doylestown PA 18901

WPM11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
06035	Lead	7439-92-1	< 0.0010	0.0010	0.00018	mg/l	1
07879	EDB in Wastewater						
01087	Ethylene dibromide	106-93-4	< 0.29	0.29	0.097	ug/l	10
The surrogate recovery for the LCS is outside the upper QC limit. Since the surrogate recovery for the LCSD and the spike recoveries for the LCS/LCSD are within the QC limits, the data was reported.							
Due to the nature of the sample extract matrix, a dilution was used for the analysis. The reporting limits were raised accordingly.							
07805	PAHs in Water by GC/MS						
03947	Naphthalene	91-20-3	< 5.	5.	5.	ug/l	1
03956	Fluorene	86-73-7	36.	5.	5.	ug/l	1
03963	Phenanthrene	85-01-8	200.	5.	5.	ug/l	1
03967	Pyrene	129-00-0	400.	5.	5.	ug/l	1
03971	Chrysene	218-01-9	300.	5.	5.	ug/l	1
Due to sample matrix interferences observed during the extraction, the normal reporting limits could not be obtained.							
02302	UST-Waters by 8260B						
02010	Methyl Tertiary Butyl Ether	1634-04-4	< 5.	5.	0.5	ug/l	1
05401	Benzene	71-43-2	< 5.	5.	0.5	ug/l	1
05402	1,2-Dichloroethane	107-06-2	< 5.	5.	1.	ug/l	1
05407	Toluene	108-88-3	< 5.	5.	0.7	ug/l	1
05415	Ethylbenzene	100-41-4	< 5.	5.	0.8	ug/l	1
05420	Isopropylbenzene	98-82-8	< 5.	5.	1.	ug/l	1
06310	Xylene (Total)	1330-20-7	< 5.	5.	0.8	ug/l	1

Commonwealth of Pennsylvania Lab Certification No. 36-037
This sample was filtered in the lab for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
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*=This limit was used in the evaluation of the final result

Lancaster Laboratories Sample No. WW 4533804

WPM11-052605 Grab Water Sample
SUN: Philadelphia Refinery AOI-6

Collected: 05/26/2005 09:10 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45
 Reported: 06/15/2005 at 16:50
 Discard: 07/16/2005

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 500 Hyde Park
 Doylestown PA 18901

WPM11			
06035	Lead	SW-846 6020	1 06/14/2005 18:36 David K Beck 1
07879	EDB in Wastewater	SW-846 8011	1 06/04/2005 14:35 James H Place 10
07805	PAHs in Water by GC/MS	SW-846 8270C	1 06/02/2005 00:13 Jolene M Graham 1
02302	UST-Waters by 8260B	SW-846 8260B	1 06/07/2005 23:12 Jason M Long 1
01163	GC/MS VOA Water Prep	SW-846 5030B	1 06/07/2005 23:12 Jason M Long n.a.
06050	ICP/MS SW-846 Water	SW-846 3010A Mod.	1 06/10/2005 19:00 James L Mertz 1
07786	EDB Extraction	SW-846 8011	1 05/31/2005 15:00 Amanda W Herr 1
07807	BNA Water Extraction	SW-846 3510C	1 05/31/2005 08:00 Danette S Blystone 1

Lancaster Laboratories Sample No. WW 4533805

WP16-5-052605 Grab Water Sample
SUN: Philadelphia Refinery AOI-6

Collected: 05/26/2005 09:30 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45
Reported: 06/15/2005 at 16:50
Discard: 07/16/2005

Langan
500 Hyde Park
Doylestown PA 18901

WP165

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
06035	Lead	7439-92-1	0.0015	0.0010	0.00018	mg/l	1
07879	EDB in Wastewater						
01087	Ethylene dibromide	106-93-4	< 0.030	0.030	0.010	ug/l	1
	The surrogate recovery for the LCS is outside the upper QC limit. Since the surrogate recovery for the LCSD and the spike recoveries for the LCS/LCSD are within the QC limits, the data was reported.						
	The surrogate recovery for the sample is outside the upper QC limit. Since the recovery is high and no ethylene dibromide was detected in the sample, the data was reported.						
07805	PAHs in Water by GC/MS						
03947	Naphthalene	91-20-3	< 10.	10.	1.	ug/l	1
03956	Fluorene	86-73-7	< 10.	10.	1.	ug/l	1
03963	Phenanthrene	85-01-8	< 10.	10.	1.	ug/l	1
03967	Pyrene	129-00-0	< 10.	10.	1.	ug/l	1
03971	Chrysene	218-01-9	< 10.	10.	1.	ug/l	1
02302	UST-Waters by 8260B						
02010	Methyl Tertiary Butyl Ether	1634-04-4	< 5.	5.	0.5	ug/l	1
05401	Benzene	71-43-2	< 5.	5.	0.5	ug/l	1
05402	1,2-Dichloroethane	107-06-2	< 5.	5.	1.	ug/l	1
05407	Toluene	108-88-3	< 5.	5.	0.7	ug/l	1
05415	Ethylbenzene	100-41-4	< 5.	5.	0.8	ug/l	1
05420	Isopropylbenzene	98-82-8	< 5.	5.	1.	ug/l	1
06310	Xylene (Total)	1330-20-7	< 5.	5.	0.8	ug/l	1

Commonwealth of Pennsylvania Lab Certification No. 36-037
This sample was filtered in the lab for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis Trial#	Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	06/14/2005 18:40	David K Beck	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories Sample No. WW 4533805

WP16-5-052605 Grab Water Sample
SUN: Philadelphia Refinery AOI-6

Collected: 05/26/2005 09:30 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45
 Reported: 06/15/2005 at 16:50
 Discard: 07/16/2005

Langan
 500 Hyde Park
 Doylestown PA 18901

WP165

07879	EDB in Wastewater	SW-846 8011	1	06/04/2005 15:05	James H Place	1
07805	PAHs in Water by GC/MS	SW-846 8270C	1	06/02/2005 01:07	Jolene M Graham	1
02302	UST-Waters by 8260B	SW-846 8260B	1	06/07/2005 23:39	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	06/07/2005 23:39	Jason M Long	n.a.
06050	ICP/MS SW-846 Water	SW-846 3010A Mod.	1	06/10/2005 19:00	James L Mertz	1
07786	EDB Extraction	SW-846 8011	1	05/31/2005 15:00	Amanda W Herr	1
07807	BNA Water Extraction	SW-846 3510C	1	05/31/2005 08:00	Danette S Blystone	1

Lancaster Laboratories Sample No. WW 4533806

WP16-3-052605 Grab Water Sample
SUN: Philadelphia Refinery AOI-6

Collected: 05/26/2005 10:00 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45
Reported: 06/15/2005 at 16:50
Discard: 07/16/2005

Langan
500 Hyde Park
Doylestown PA 18901

WP163

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
06035	Lead	7439-92-1	< 0.0010	0.0010	0.00018	mg/l	1
07879	EDB in Wastewater						
01087	Ethylene dibromide The surrogate recovery for the LCS is outside the upper QC limit. Since the surrogate recovery for the LCSD and the spike recoveries for the LCS/LCSD are within the QC limits, the data was reported.	106-93-4	< 0.030	0.030	0.0099	ug/l	1
07805	PAHs in Water by GC/MS						
03947	Naphthalene	91-20-3	< 10.	10.	1.	ug/l	1
03956	Fluorene	86-73-7	< 10.	10.	1.	ug/l	1
03963	Phenanthrene	85-01-8	< 10.	10.	1.	ug/l	1
03967	Pyrene	129-00-0	< 10.	10.	1.	ug/l	1
03971	Chrysene	218-01-9	< 10.	10.	1.	ug/l	1
02302	UST-Waters by 8260B						
02010	Methyl Tertiary Butyl Ether	1634-04-4	< 5.	5.	0.5	ug/l	1
05401	Benzene	71-43-2	< 5.	5.	0.5	ug/l	1
05402	1,2-Dichloroethane	107-06-2	< 5.	5.	1.	ug/l	1
05407	Toluene	108-88-3	< 5.	5.	0.7	ug/l	1
05415	Ethylbenzene	100-41-4	< 5.	5.	0.8	ug/l	1
05420	Isopropylbenzene	98-82-8	< 5.	5.	1.	ug/l	1
06310	Xylene (Total)	1330-20-7	< 5.	5.	0.8	ug/l	1

Commonwealth of Pennsylvania Lab Certification No. 36-037
This sample was filtered in the lab for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	06/14/2005 18:43	David K Beck	1
07879	EDB in Wastewater	SW-846 8011	1	06/04/2005 15:35	James H Place	1
07805	PAHs in Water by GC/MS	SW-846 8270C	1	06/02/2005 02:00	Jolene M Graham	1
02302	UST-Waters by 8260B	SW-846 8260B	1	06/08/2005 00:05	Jason M Long	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories Sample No. WW 4533806**WP16-3-052605 Grab Water Sample
SUN: Philadelphia Refinery AOI-6**

Collected: 05/26/2005 10:00 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45
Reported: 06/15/2005 at 16:50
Discard: 07/16/2005Langan
500 Hyde Park
Doylestown PA 18901**WP163**

01163	GC/MS VOA Water Prep	SW-846 5030B	1	06/08/2005 00:05	Jason M Long	n.a.
06050	ICP/MS SW-846 Water	SW-846 3010A Mod.	1	06/10/2005 19:00	James L Mertz	1
07786	EDB Extraction	SW-846 8011	1	05/31/2005 15:00	Amanda W Herr	1
07807	BNA Water Extraction	SW-846 3510C	1	05/31/2005 08:00	Danette S Blystone	1

Lancaster Laboratories Sample No. WW 4533807

B145-052605 Grab Water Sample
SUN: Philadelphia Refinery AOI-6

Collected: 05/26/2005 11:30 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45
Reported: 06/15/2005 at 16:50
Discard: 07/16/2005

Langan
500 Hyde Park
Doylestown PA 18901

B145-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
06035	Lead	7439-92-1	< 0.0010	0.0010	0.00018	mg/l	1
07879	EDB in Wastewater						
01087	Ethylene dibromide	106-93-4	< 0.029	0.029	0.0096	ug/l	1
	The surrogate recovery for the LCS is outside the upper QC limit. Since the surrogate recovery for the LCSD and the spike recoveries for the LCS/LCSD are within the QC limits, the data was reported.						
07805	PAHs in Water by GC/MS						
03947	Naphthalene	91-20-3	11.	10.	1.	ug/l	1
03956	Fluorene	86-73-7	41.	10.	1.	ug/l	1
03963	Phenanthrene	85-01-8	24.	10.	1.	ug/l	1
03967	Pyrene	129-00-0	14.	10.	1.	ug/l	1
03971	Chrysene	218-01-9	< 10.	10.	1.	ug/l	1
02302	UST-Waters by 8260B						
02010	Methyl Tertiary Butyl Ether	1634-04-4	< 5.	5.	0.5	ug/l	1
05401	Benzene	71-43-2	38.	5.	0.5	ug/l	1
05402	1,2-Dichloroethane	107-06-2	< 5.	5.	1.	ug/l	1
05407	Toluene	108-88-3	5.	5.	0.7	ug/l	1
05415	Ethylbenzene	100-41-4	< 5.	5.	0.8	ug/l	1
05420	Isopropylbenzene	98-82-8	62.	5.	1.	ug/l	1
06310	Xylene (Total)	1330-20-7	13.	5.	0.8	ug/l	1

Commonwealth of Pennsylvania Lab Certification No. 36-037
This sample was filtered in the lab for dissolved metals.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	06/14/2005 18:47	David K Beck	1
07879	EDB in Wastewater	SW-846 8011	1	06/04/2005 16:05	James H Place	1
07805	PAHs in Water by GC/MS	SW-846 8270C	1	06/02/2005 02:53	Jolene M Graham	1
02302	UST-Waters by 8260B	SW-846 8260B	1	06/04/2005 09:34	Ginelle L Haines	1

*=This limit was used in the evaluation of the final result

Lancaster Laboratories Sample No. WW 4533807**B145-052605 Grab Water Sample****SUN: Philadelphia Refinery AOI-6**

Collected: 05/26/2005 11:30 by MBS

Account Number: 10132

Submitted: 05/27/2005 16:45

Langan

Reported: 06/15/2005 at 16:50

500 Hyde Park

Discard: 07/16/2005

Doylestown PA 18901

B145-

01163	GC/MS VOA Water Prep	SW-846 5030B	1	06/04/2005 09:34	Ginelle L Haines	n.a.
06050	ICP/MS SW-846 Water	SW-846 3010A Mod.	1	06/10/2005 19:00	James L Mertz	1
07786	EDB Extraction	SW-846 8011	1	05/31/2005 15:00	Amanda W Herr	1
07807	BNA Water Extraction	SW-846 3510C	1	05/31/2005 08:00	Danette S Blystone	1

Lancaster Laboratories Sample No. WW 4533808

Trip Blank Water Sample
SUN: Philadelphia Refinery AOI-6

Collected: n.a.

Account Number: 10132

Submitted: 05/27/2005 16:45
Reported: 06/15/2005 at 16:50
Discard: 07/16/2005

Langan
500 Hyde Park
Doylestown PA 18901

PR-TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Units	Dilution Factor
02302	UST-Waters by 8260B						
02010	Methyl Tertiary Butyl Ether	1634-04-4	< 5.	5.	0.5	ug/l	1
05401	Benzene	71-43-2	< 5.	5.	0.5	ug/l	1
05402	1,2-Dichloroethane	107-06-2	< 5.	5.	1.	ug/l	1
05407	Toluene	108-88-3	< 5.	5.	0.7	ug/l	1
05415	Ethylbenzene	100-41-4	< 5.	5.	0.8	ug/l	1
05420	Isopropylbenzene	98-82-8	< 5.	5.	1.	ug/l	1
06310	Xylene (Total)	1330-20-7	< 5.	5.	0.8	ug/l	1

Commonwealth of Pennsylvania Lab Certification No. 36-037

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02302	UST-Waters by 8260B	SW-846 8260B	1	06/04/2005 09:58	Ginelle L Haines	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	06/04/2005 09:58	Ginelle L Haines	n.a.

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Langan

Group Number: 945378

Reported: 06/15/05 at 04:50 PM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ**</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 05148WAF026	Sample number(s): 4533803-4533807								
Naphthalene	< 10.	10.	1.	ug/l	81	84	58-108	4	30
Fluorene	< 10.	10.	1.	ug/l	87	91	61-116	4	30
Phenanthrene	< 10.	10.	1.	ug/l	93	93	68-111	1	30
Pyrene	< 10.	10.	1.	ug/l	92	95	68-114	3	30
Chrysene	< 10.	10.	1.	ug/l	92	93	70-111	1	30
Batch number: 051510008A	Sample number(s): 4533803-4533807								
Ethylene dibromide	< 0.030	0.030	0.010	ug/l	117	79	60-140	38*	20
Batch number: 051616050005A	Sample number(s): 4533803-4533807								
Lead	< 0.0010	0.0010	0.00018	mg/l	99		80-120		
Batch number: P051584AA	Sample number(s): 4533803-4533806								
Methyl Tertiary Butyl Ether	< 5.	5.	0.5	ug/l	99		77-127		
Benzene	< 5.	5.	0.5	ug/l	103		85-117		
1,2-Dichloroethane	< 5.	5.	1.	ug/l	104		77-132		
Toluene	< 5.	5.	0.7	ug/l	104		85-115		
Ethylbenzene	< 5.	5.	0.8	ug/l	103		82-119		
Isopropylbenzene	< 5.	5.	1.	ug/l	104		80-120		
Xylene (Total)	< 5.	5.	0.8	ug/l	104		83-113		
Batch number: Z051551AA	Sample number(s): 4533807-4533808								
Methyl Tertiary Butyl Ether	< 5.	5.	0.5	ug/l	84	84	77-127	0	30
Benzene	< 5.	5.	0.5	ug/l	92	92	85-117	1	30
1,2-Dichloroethane	< 5.	5.	1.	ug/l	97	96	77-132	1	30
Toluene	< 5.	5.	0.7	ug/l	92	92	85-115	1	30
Ethylbenzene	< 5.	5.	0.8	ug/l	94	92	82-119	3	30
Isopropylbenzene	< 5.	5.	1.	ug/l	96	91	80-120	5	30
Xylene (Total)	< 5.	5.	0.8	ug/l	96	93	83-113	3	30

Sample Matrix Quality Control

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>BKG</u>	<u>DUP</u>	<u>DUP</u>	<u>Dup RPD</u>
Batch number: 051510008A	Sample number(s): 4533803-4533807							
Ethylene dibromide	113		65-135		< 0.030	< 0.030	0 (1)	30
Batch number: 051616050005A	Sample number(s): 4533803-4533807							
Lead	105	98	75-125	6	< 0.0010	< 0.0010	5 (1)	20

*- Outside of specification

**-This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The background result was more than four times the spike added.

Quality Control Summary

Client Name: Langan
Reported: 06/15/05 at 04:50 PM

Group Number: 945378

Sample Matrix Quality Control

	MS	MSD	MS/MSD	RPD	BKG	DUP	DUP	Dup
	%REC	%REC	Limits	RPD	MAX	Conc	RPD	RPD
Analysis Name								Max
Batch number: P051584AA	Sample number(s): 4533803-4533806							
Methyl Tertiary Butyl Ether	103	101	69-134	2	30			
Benzene	109	107	83-128	2	30			
1,2-Dichloroethane	107	108	73-136	1	30			
Toluene	108	108	83-127	0	30			
Ethylbenzene	107	107	82-129	1	30			
Isopropylbenzene	109	107	81-130	2	30			
Xylene (Total)	106	105	82-130	1	30			
Batch number: Z051551AA	Sample number(s): 4533807-4533808							
Methyl Tertiary Butyl Ether	86		69-134					
Benzene	97		83-128					
1,2-Dichloroethane	96		73-136					
Toluene	98		83-127					
Ethylbenzene	99		82-129					
Isopropylbenzene	102		81-130					
Xylene (Total)	100		82-130					

Surrogate Quality Control

Analysis Name: PAHs in Water by GC/MS

Batch number: 05148WAF026

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
4533803	181*	88	123
4533804	101	87	118
4533805	88	82	116
4533806	92	85	129
4533807	93	85	128
Blank	94	84	141*
LCS	92	86	134
LCSD	96	87	142*
Limits:	51-123	64-112	53-135

Analysis Name: EDB in Wastewater

Batch number: 051510008A

	1,1,2,2-Tetrachloroethane
4533803	136*
4533804	104
4533805	122*
4533806	89
4533807	106
Blank	100
DUP	98
LCS	123*
LCSD	89
MS	120

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

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- (2) The background result was more than four times the spike added.

Quality Control Summary

Client Name: Langan
Reported: 06/15/05 at 04:50 PM

Group Number: 945378

Surrogate Quality Control

Limits: 52-120

Analysis Name: UST-Waters by 8260B
Batch number: P051584AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4533803	109	106	111	108
4533804	110	110	111	107
4533805	110	109	109	104
4533806	111	110	110	103
Blank	110	105	112	104
LCS	110	107	111	106
MS	109	107	110	105
MSD	109	107	112	107

Limits: 81-120 82-112 85-112 83-113

Analysis Name: UST-Waters by 8260B
Batch number: Z051551AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4533807	95	93	100	105
4533808	97	95	96	91
Blank	97	95	96	91
LCS	95	97	96	94
LCSD	96	96	95	94
MS	96	95	96	94

Limits: 81-120 82-112 85-112 83-113

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

Analysis Request / Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # 10132 Group # 945378 Sample # 4533813-18 **COC #** 0088236

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: <u>Sun-Aquaterne / Langan</u> Acct. #: _____ Project Name: <u>Sun-Philadelphia Refinery P&ID GPWSID #:</u> _____ Project Manager: <u>L. Martin / J. Hanna</u> P.O.#: _____ Sampler: <u>M. Brad Spence</u> Quote #: _____ Name of state where samples were collected: <u>PA</u>		2 Sample Identification <table border="1"> <thead> <tr> <th>Sample Identification</th> <th>Date Collected</th> <th>Time Collected</th> <th>Matrix</th> <th>Other</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>WPM8-052605</td> <td>5/26/05</td> <td>0845</td> <td>X</td> <td></td> <td rowspan="5"> Dissolved Pb Samples are unfiltered / unpreserved temp 2.4°C Pb 5/27/05 </td> </tr> <tr> <td>WPM11-052605</td> <td>5/26/05</td> <td>0910</td> <td>X</td> <td></td> </tr> <tr> <td>WPM10-5-052605</td> <td>5/26/05</td> <td>0930</td> <td>X</td> <td></td> </tr> <tr> <td>WPM10-3-052605</td> <td>5/26/05</td> <td>1000</td> <td>X</td> <td></td> </tr> <tr> <td>BH5-052605</td> <td>5/26/05</td> <td>1130</td> <td>X</td> <td></td> </tr> </tbody> </table>		Sample Identification	Date Collected	Time Collected	Matrix	Other	Remarks	WPM8-052605	5/26/05	0845	X		Dissolved Pb Samples are unfiltered / unpreserved temp 2.4°C Pb 5/27/05	WPM11-052605	5/26/05	0910	X		WPM10-5-052605	5/26/05	0930	X		WPM10-3-052605	5/26/05	1000	X		BH5-052605	5/26/05	1130	X		3 Matrix <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Other <input type="checkbox"/> NPDES Applicable		4 Matrix <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Other <input type="checkbox"/> NPDES Applicable		5 Matrix <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Other <input type="checkbox"/> NPDES Applicable		6 For Lab Use Only FSC: _____ SCR #: _____	
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7 Turnaround Time Requested (TAT) (please circle) <u>Normal</u> Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: _____ Rush results requested by (please circle): _____ Phone _____ Fax _____ E-mail _____ Phone #: _____ Fax #: _____ E-mail address: _____						Relinquished by: <u>M. Brad Spence</u> Date: <u>5/26/05</u> Time: <u>1030</u> Relinquished by: <u>L. Martin</u> Date: <u>5/27/05</u> Time: <u>1055</u> Relinquished by: <u>J. Hanna</u> Date: <u>5/27/05</u> Time: <u>1055</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____																																					
8 Data Package Options (please circle if required) QC Summary Type VI (Raw Data) <u>Yes</u> No Type I (Tier I) <u>Yes</u> No Type II (Tier II) <u>Yes</u> No Type III (NJ Red. Del.) <u>Yes</u> No Type IV (CLP) <u>Yes</u> No Site-specific QC required? <u>Yes</u> No (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? <u>Yes</u> No						Relinquished by: <u>J. Hanna</u> Date: <u>5/27/05</u> Time: <u>1055</u> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____																																					

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	l	liter(s)
m3	cubic meter(s)	ul	microliter(s)
<	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
J	estimated value – The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	B	Value is $<$ CRDL, but \geq IDL
B	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	U	Compound was not detected
P	Concentration difference between primary and confirmation columns $>25\%$	W	Post digestion spike out of control limits
U	Compound was not detected	*	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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